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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,242	03/26/2004	James M. Harris	RED-P002	1754

7590 01/05/2007  
Fernandez & Associates, LLP  
PO Box D  
Menlo Park, CA 94026-6402

EXAMINER
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LEE, CLOUD K

ART UNIT	PAPER NUMBER
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3753

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/05/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/810,242

Applicant(s)

HARRIS ET AL.

Examiner

Cloud K. Lee

Art Unit

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-8,10-13 and 16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-8,10-13 and 16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/13/06 has been entered.

### *Election/Restrictions*

2. Applicant's election of Group I in the reply filed on 6/16/2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 14-15 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group II and Group III, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 6/16/2006.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-3, 5-8, 10-13 and 16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 1 and 6 recite “the means for stiffening prevents the flexible member from actuated positions which do not open the cantilever”. One having ordinary skill in the art would not be able to make and/or use the device with the means for stiffening preventing the flexible member from actuated positions which do not open the cantilever. It appears that the means for stiffening could only lessen the degree of flexing when the flexible member opens the cantilever. Also, one having ordinary skill in the art would not be able make and/or use the second pedestal or the means for stiffening to prevent the flexing between the first pedestal (210) and the second pedestal (240) as recited in claims 1 and 6. Furthermore, claim 16 recites the second pedestal is attached to the cantilever element, such that the flexible member is prevented from flexing in alternate flexure modes, whereby the flexible membrane can assume only actuated position that open the cantilever with respect to the inlet. One having ordinary skill in the art would not be able to make and/or use the device with the second pedestal prevent the flexing of the flexible membrane when the second pedestal is attached to the cantilever element as recited in claim 16. Therefore,

claims 1-3, 5-8, 10-13 and 16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement.

5. Claims 1-3, 5-8, 10-13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harris (US Patent No. 6,149,123) in view of Nestler (US Patent No. 5,040,567).

Regarding claims 1 and 6, Harris discloses a fluid guiding structure containing a fluid inlet port and a fluid outlet port (Figure 2, elements 520 and 510); a fluid communication channel (Figure 2, element 540), formed within said fluid guiding structure, fluidically coupling said fluid inlet port to said fluid outlet port; an intermediary port, formed within said fluid communication channel, said fluid inlet port being fluidically coupled to said fluid outlet port valve through said intermediary port; a cantilever element (Figure 2, element 300), moveably positioned proximate to said intermediary port within said fluid communication channel; an energy conversion body defining a chamber enclosing a working fluid (Figure 2, element 130), said energy conversion body being at least partially formed of a semiconductor material, said energy conversion body including a flexible membrane (Figure 2, element 200) mechanically coupled to said cantilever element through a first pedestal (Figure 2, element 210); said cantilever element normally closed over an inlet port (Col 4 line 20-23). Under a more narrow interpretation of "stiffening means", Harris fails to disclose a stiffening means positioned on said flexible membrane proximate to said first pedestal and said fluid inlet port wherein the means for stiffening prevents the flexible membrane from actuated positions which do not open the cantilever.

Nestler discloses the stiffening means positioned on said flexible membrane proximate to said first pedestal and said fluid inlet port (Figure 2 element 20C) wherein the means for stiffening prevents the flexible membrane from actuated positions which do not open the cantilever. It would have been obvious to one of ordinary skill in the art at the time of the invention to have provided a stiffening means positioned on said flexible membrane proximate to said first pedestal and said fluid inlet port wherein the means for stiffening prevents the flexible membrane from actuated positions which do not open the cantilever, as taught by Nestler, to prevent flexible membrane from deformation during operation (Col 3 line 50-54).

Regarding claims 1 and 6, Nesler discloses the means for stiffening to prevent the flexible from deformation during operation, in other words, Nesler's means for stiffening could prevent the flexible member from actuated positions which do not open the cantilever by preventing the deformation of the flexible membrane during operation.

Regarding claims 2 and 7, "wherein said cantilever element includes a set of beams operative as a restoring force during deflection of said valve element by said flexible membrane." Harris discloses cantilever element includes a set of beams operative as a restoring force during deflection of said valve element by said flexible membrane (Figure 7).

Regarding claims 3 and 8 "wherein said flexible membrane is single crystal silicon between 15 and 100 microns thick". Harris discloses a single crystal silicon between 15 and 100 microns thick (Col 6 line 51-53).

Regarding claims 5 and 10 "wherein said stiffening means is one or more regions of increased thickness of said flexible membrane". Nestler discloses a stiffening mean increased thickness of said flexible membrane (Figure 2 element 20C).

Regarding claim 11 “wherein said actuation means can extend said flexible membrane in a manner proportional to an amount of energy supplied to said actuation means”. Harris discloses an actuation means can extend said flexible membrane in a manner proportional to an amount of energy supplied to said actuation means (Col 13 line 46-48).

Regarding claim 12 “wherein said cantilever element contains a compliant element attached onto a portion covering said inlet port”. Harris discloses a cantilever element contains a compliant element attached onto a portion covering said inlet port (Figure 2).

Regarding claim 13 “wherein said compliant element is a PTFE material”. Harris discloses a micro-valve having a “wetted surfaces” made of or coated with Teflon® material, which is considered a “PTFE material”.

Regarding claim 16, Harris failed to discloses a second pedestal proximate to said first pedestal, wherein said second pedestal is attached to the cantilever element such that the flexible membrane is prevented from flexing in alternate flexure modes, whereby the flexible membrane can assume only actuated positions that open the cantilever with respect to the inlet port.

Nestler discloses the stiffening means positioned on said flexible membrane proximate to said first pedestal and said fluid inlet port (Figure 2 element 20C) wherein the means for stiffening prevents the flexible membrane from actuated positions which do not open the cantilever. It would have been obvious to one of ordinary skill in the art at the time of the invention to have provided a stiffening means positioned on said cantilever element, in order to prevent cantilever element from deformation during operation as taught by Nestler (Col 3 line 50-54).

### **Response to Arguments**

6. Applicant's arguments with respect to claim 16 have been considered but are moot in view of the new ground(s) of rejection.

In response to applicant's argument that the teachings of Nestler is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Nestler teaches a valve with a stiffening means in order to prevent flexible membrane from deformation during operation (Col 3 line 50-54) and it is reasonably pertinent to the particular problem with which the applicant was concerned.

In response to applicant's argument that the means for stiffening prevents the flexible membrane from actuated positions which do not open the cantilever, Nesler discloses the means for stiffening to prevent the flexible from deformation during operation, in other words, Nesler's means for stiffening could prevent the flexible member from actuated positions which do not open the cantilever by preventing the deformation of the flexible membrane during operation.

### ***Oath/Declaration***

7. The Affidavit under 37 CFR 1.132 filed 10/23/06 is insufficient to overcome the rejection of claims 1-3, 5-8, 10-13 and 16 based upon 35 U.S.C. 103(a) as set forth in the last Office action because:



The declaration must set forth facts, not mere opinions or conclusions, and the facts must be pertinent to the rejection. Dr. Harris's opinions are not germane to the issue of patentability of the claims.

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cloud K. Lee whose telephone number is (571)272-7206. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Keasel can be reached on (571)272-4929. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CL

A handwritten signature in black ink, appearing to read "Eric Keasel". The signature is fluid and cursive, with the first name "Eric" and last name "Keasel" clearly distinguishable.

ERIC KEASEL  
**SUPERVISORY PATENT EXAMINER**  
TECHNOLOGY CENTER 3700